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Notice of Allowability

Application No.

10/749,634

Examiner

Erin M. File

Applicant(s)

DEMIR ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/31/2003.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


DAVID C. PAYNE

SUPERVISORY PATENT EXAMINER

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:

The limitation of a digital time domain compensation module which receives the processed distorted digital real and imaginary signal components and outputs digital real and imaginary compensated signal components, wherein the digital time domain compensation module removes group delay variation distortion, introduced by the first and second analog LPFs, from the real and imaginary signal components was not found in the prior art of record.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
3. Husted (U.S. Pub. No. 2003/0206603) discloses the following limitations of Claims 1, 9, 17:
 - (a) a demodulator which outputs analog real and imaginary signal components in response to receiving the communication signal (fig. 3, 225, 275I, 275Q);
 - (b) a first analog low pass filter (LPF) which receives the analog real signal component from the demodulator and outputs a distorted analog real signal component (fig. 3, 240Q);

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- (c) a second analog LPF which receives the analog imaginary signal component from the demodulator and outputs a distorted analog imaginary signal component (fig. 3, 240I);
 - (d) a first digital gain control circuit which receives the distorted analog real signal component from the first analog LPF and outputs a processed distorted digital real signal component (see fig. 3 and also fig. 4, 290Q receives analog real signal and outputs processed digital real signal);
 - (e) a second digital gain control circuit which receives the distorted analog imaginary signal component from the second analog LPF and outputs a processed distorted digital imaginary signal component (see fig. 3 and also fig. 4, 290I receives analog imaginary signal and outputs processed digital imaginary signal);
4. Knee et al. (U.S. Patent No. 5,539,773) discloses limitations found in Claims 2-5, 10-13, and 18-21:
- (ii) a plurality of component delay units connected in series along the signal path (fig. 3, shows a plurality of delay elements, Z^{-1})
 - (iii) a plurality of filter coefficient positions (fig. 3, shows a plurality of coefficients, ΦW_{NK})
 - (iv) a first combiner having a plurality of inputs (fig. 3, summation unit Σ has a plurality of inputs)

- (v) a plurality of active filter coefficient units located at a subset of the filter coefficient positions, wherein each of the active filter coefficient units has an input connected to the signal path and an output connected to one of the inputs of the first combiner, and the first combiner outputs the compensated signal component (fig. 3).

5. Voorman (U.S. Patent No. 5,124,705) discloses limitations found in claims 6, 14, 22: a finite impulse response (FIR) filter having characteristics which are selected such that the frequency domain response of the digital time domain compensation module is the inverse of the frequency domain response of the analog LPFs (col. 5, lines 1-8).

Because this frequency matching is well known in the art for reducing the introduction of error in the received signal, it would have been obvious to one skilled in the art at the time of invention to incorporate the FIR as disclosed by Voorman in to the invention of Husted.

6. Minowa (U.S. Patent No. 7,103,029) discloses limitations found in Claims 7, 8, 15, 16, 23, and 24:

- a logarithmic amplifier for compressing the distorted analog real signal component from a wider dynamic range to a lower dynamic range (col. 9, lines 57-58, fig. 2, 53c);

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- (ii) an analog to digital converter (ADC) for converting the compressed distorted analog real signal component to a compressed distorted digital real signal component (col. 9, lines 61, fig. 2, 64)
- (iii) a look up table (LUT) which provides an anti-log function used to decompress the compressed distorted digital real signal component (col. 9, line 66-col. 10, lines 2, fig. 2, 65).

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571)272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File



3/15/2007


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